



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew J. Thurston		
Assignee:	Cisco Technology, Inc.		
Title:	BCH FORWARD ERROR CORRECTION DECODER		
Serial No.:	09/822,950	Filed:	March 30, 2001
Examiner:	Dipakkumar B. Gandhi	Group Art Unit:	2138
Docket No.:	CIS0069US	Confirmation No.:	6592

Austin, Texas
August 31, 2006

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

Applicants hereby request review of the final rejection, mailed June 1, 2006, in the above-identified application. This Request is being filed concurrently with a Notice of Appeal. No amendments are being filed with this request.

This review is requested for the reasons set forth in the Remarks section below.

REMARKS

Claims 1-29 and 31-55 are pending in the application.

Claims 1-29 and 31-55 stand rejected.

Rejection of Claims under 35 U.S.C. §112

Claim 1 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Final Office Action mailed June 1, 2006 (hereinafter referred to as "FOA")

states that: “the extracting comprises generating a plurality of minimum-degree polynomials based on no more than six equations having no more than two branch decisions’ does not describe the features of the invention.” FOA, p. 3. The Examiner provides no support for this position. For example, the Examiner has not pointed to any statement by the Applicant indicating that the invention differs from what is defined in claim 1. Applicant respectfully traverses this rejection and asserts that claim 1 fully complies with the requirements of 35 U.S.C. §112, second paragraph.

Applicants are their own lexicographers and, as such, are free to use “functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. MPEP §2173.01. In claim 1, Applicant has set forth the scope of the claim by specifying the maximum number of equations and branch decisions that can be used to generate the minimum degree polynomials. The language of claim 1 makes it clear that no more than six equations (i.e., six equations or less) are used to generate the minimum-degree polynomials. The meanings of the terms “equations” and “branch decisions” are clear, as is the language specifying the maximum number of each.

By clearly setting forth the maximum number of equations and branch decisions used to generate the minimum-degree polynomials, the claim clearly describes one particular feature of the invention. Furthermore, claim 1 sets forth the subject matter that Applicant regards as the invention using claim language that is clear to one of ordinary skill in the art. Accordingly, claim 1 satisfies the requirements of §112, second paragraph. As such, Applicant respectfully requests the withdrawal of this rejection.

In the telephone interview of March 13, 2006, Examiner Gandhi stated that the portion of claim 1 reciting “no more than six equations having no more than two branch decisions” was the particular language that did not describe the features of the invention. Examiner Gandhi contrasted claim 1 with claim 9 (which explicitly sets forth one set of equations that can be used to generate an error locator polynomial), stating that claim 9 was an example of a claim that did set forth the features of the invention.

By specifying claim 9 as an example of a claim that does set forth the features of the invention, the Examiner appears to be implying that claim 1 is indefinite simply because claim 1

has greater breadth than claim 9. However, claim breadth is not to be equated with indefiniteness. “If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. §112, second paragraph.” MPEP §2173.94, citing *In re Miller*, 441 F.2d 689, 179 USPQ 597 (CCPA 1971). Accordingly, since the scope of claim 1 is clear (for the reasons set forth above), Applicant asserts that claim 1 is not indefinite merely because it has greater breadth than claim 9.

Rejection of Claims under 35 U.S.C. §103

Claims 1-6, 9, 10, 11, 13, 14, 15, 17, 18, 24, 25, 26, 31, 32, 38, 39, 40, 42, 43, 44, 45 and 55 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh et al., U.S. Patent No. 5,583,499 (hereinafter referred to as “Oh”) in view of Kraft, U.S. Patent No. 5,343,481 (hereinafter referred to as “Kraft”).

With respect to claim 1, the cited art fails to teach or suggest: extracting an error polynomial from the data signal, wherein the extracting comprises generating a plurality of minimum-degree polynomials based on no more than six equations having no more than two branch decisions. The rejection of claim 1 relies on lines 2-7 and 33-57 of col. 6 of Kraft to teach this feature of claim 1. Non-Final Office Action, mailed Dec. 14, 2005, p. 3, FOA p. 2. However, this feature of claim 1 is neither taught nor suggested by the cited portions of Kraft.

Kraft describes how an error location polynomial can be found by calculating tree decision variables from the syndromes, and then using the tree decision variables and the syndromes to traverse a binary decision tree. The traversal of the binary decision tree leads to one of eight temporary control bits e11-e18. The selected temporary control bit identifies a respective one of eight different potential error location polynomials. The identified one of the polynomials is then selected as the error location polynomial. Kraft, col. 5, line 49 - col. 6, line 36. The eight potential error location polynomials, which are each identified by a respective temporary control bit, are shown on lines 37-47 of col. 6 of Kraft.

Kraft does not teach extracting an error polynomial from the data signal, wherein the extracting comprises generating a plurality of minimum-degree polynomials, as recited in claim

1. While Kraft's disclosure does show several polynomials (each identified by a respective one of temporary control bits e11-e18) in lines 37-47 of col. 6, multiple ones of these polynomials are not generated in the process of extracting an error polynomial. Instead, a single one of those polynomials is selected as the error locator polynomial, based on which temporary control bit is identified by the traversal of the binary decision tree. Accordingly, Kraft does not teach or suggest generating a plurality of minimum-degree polynomials, as recited in claim 1. Oh, both alone and in combination with Kraft, also fails to teach or suggest this feature.

Furthermore, Kraft does not teach generating a plurality of minimum-degree polynomials based on no more than six equations having no more than two branch decisions. As shown in FIG. 2 of Kraft, traversal of the binary decision tree involves three branch decisions (one decision at element 13, another decision at either element 12 or 23, and a final decision at one of elements 14, 14, 24, or 25). Accordingly, Kraft, both alone and in combination with Oh, also fails to teach or suggest this feature of claim 1.

Claim 1, as well as dependent claims 2-6, 9, 10, and 11, is patentable over the cited art for at least the foregoing reasons. Independent claims 13, 25, and 38 include similar features to claim 1, and thus these claims, as well as their dependent claims 14, 15, 17, 18, 24, 26, 31, 32, 39, 40, 42, 43, 44, 45 and 55, are patentable over the cited art for similar reasons.

Further with respect to claims 9 and 38, the cited art fails to teach or suggest the specific set of six equations recited in these claims. Col. 6 of Kraft is cited as teaching these equations. Non-Final Office Action, mailed Dec. 14, 2005, pp. 4 and 7. However, Kraft neither teaches nor suggests all of the equations listed in claims 9 and 38. Instead, the cited portion of Kraft discloses (1) formulas for generating tree decision variables (col. 6, lines 15-26); (2) potential error location polynomials (col. 6, lines 37-47); and (3) formulas for generating values e1-e4, which are included in some of the potential error location polynomials (col. 6, lines 50-56). None of items (1)-(3) includes, for example, the equation $d_1 = S_3 + S_1S_2$, which is recited in both claim 9 and claim 38. Oh, both alone and in combination with Kraft, also fails to teach or suggest that equation. Thus, the cited art does not teach or suggest claims 9 and 38.

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh as applied to claim 1 above, and further in view of Erhart, et al., U.S. Patent No. 5,051,999. Claims 8, 16, 19, 20, 21, 22, 23, 27, 28, 29, 33, 34, 35, 36 and 37 stand rejected under 35 U.S.C. §

103(a) as being unpatentable over Oh and Kraft as applied to claim 1 above, and further in view of Stenerson, U.S. Patent No. 4,597,083. Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh and Kraft as applied to claim 11 above, and further in view of Wicker (Error Control Systems for Digital Communication and Storage, 1995, Prentice-Hall, Inc.). Claims 7-8 and 12 are patentable over the cited art for at least the foregoing reasons provided above with respect to claim 1. Claims 16, 19, 20, 21, 22, 23, 27, 28, 29, 33, 34, 35, 36 and 37 are patentable over the cited art for similar reasons.


Claim 41 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh and Kraft as applied to claim 38 above, and further in view of Wolf (U.S. Pat. No. 6,385,751 B1). Claims 46 and 47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh and Kraft as applied to claim 38 above, and further in view of Maki et al. (U.S. Pat. No. 4,873,688). Claims 41 and 46-47 are patentable over the cited art for at least the foregoing reasons provided above with respect to claim 38.

Claims 48, 49, 50, 51, 52 and 53 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Alvarez et al., U.S. Publication No. 2002/0165962 A1 in view of Kraft. Claim 54 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Alvarez and Kraft as applied to claim 48 above, and further in view of Wicker. These claims are patentable over the cited art for reasons similar to those provided above with respect to claim 1. In particular, for reasons similar to those provided above, the cited art does not teach or suggest generating the error polynomial based on a plurality of minimum-degree polynomials, as recited in claim 48.

CONCLUSION

Applicants assert that the application is in condition for allowance and respectfully request that a finding withdrawing the final rejection of the claims be issued.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on August 31, 2006.


Attorney for Applicant(s)

8/31/2006
Date of Signature

Respectfully submitted,



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